

ABSTRACT OF THE DISCLOSURE

A system for converting an image into a hologram formed from diffraction gratings includes obtaining image data for each pixel in an image to be converted, putting it into digital form and using the image data to control portions of a laser beam split into a reference beam and at least one object beam. The diffraction gratings are formed by an interference pattern of a reference beam and at least one object beam intersecting on the surface of a photoresist material on a pixel-by-pixel basis.

Modulation of at least one object beam and adjustment of the angle at which that beam interferes with the reference beam on the photoresist material is used to reflect image data for each pixel of the image being converted into a hologram consisting of diffraction gratings. By using this technique and selecting the spacings between pixel pairs on the photosensitive surface, the angle at which a viewer will see a predetermined image or reflecting light from the hologram is determined, as well as the apparent position of the image created by reflecting light from the hologram constituted by the spaced diffraction gratings.

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